CURRICULUM VITAE

Jeffrey L. Boore

PERSONAL

Born February 17, 1958, Cumberland, Maryland. Married to Susan I. Fuerstenberg

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CURRENT POSITION

Evolutionary Genomics Department Head, DOE Joint Genome Institute (JGI)
University of California Scientist, Lawrence Berkeley National Laboratory
Associate Adjunct Professor, University of California, Berkeley

DUTIES: Develop the comparative genomics program of the JGI and oversee its operation, provide scientific and managerial leadership for the JGI Evolutionary Genomics Department, serve as a member of the senior management committee of the JGI to provide direction for large-scale sequencing efforts, represent JGI with external organizations and funding agencies, communicate results through scientific publications and presentations, provide training in the methods and concepts of comparative genomics, develop collaborations and manage proposals with researchers outside of the JGI, provide outreach to increase public understanding of genomics

PREVIOUS SCIENTIFIC POSITIONS

2000-2002	Comparative Genomics / Genomic Diversity Group Leader, DOE JGI
1996-2000	Visiting Research Scientist, University of Michigan Department of Biology
1992-1996	NIH Postdoctoral Fellow, University of Minnesota Department of Cell Biology and Neuroanatomy

EDUCATION

1992-96	Postdoctoral training, University of Minnesota
1992	Ph.D., Biology, University of Michigan
1982-84	Graduate study, Wichita State University (non-degree)
1980	B.S., Biology, Pennsylvania State University

COURSE WORK: Areas emphasized include Genetics, Molecular Biology, Biochemistry, Cell and Developmental Biology, Population Genetics, Evolutionary Biology, Genome Evolution, Biology of Invertebrates, and Theory and Methods of Systematics.

EVOLUTIONARY GENOMICS GROUP

Permanent staff: Dr. J. Robert Macey (scientist), Dr. Mónica Medina (scientist), Dr. Pilar Francino (scientist), H. Matthew Fourcade (senior research associate), Jeff Froula (senior research associate), Jennifer Kuehl (research associate), David Engle (research associate). **Current postdoctoral scholars:** Dr. Susan Masta, Dr. Richard Baker, Dr. Douda Bensasson, Dr. Martha Lucia-Posada. **Current graduate students**: Kirsten Lindstrom, Rachel Mueller, Yvonne Vallès, Tori Takaoka (undergraduate). **Graduate students trained:** Kevin Helfenbein (Ph.D. September 2002, postdoctoral scholar at Columbia U), Corrie Saux (M.S. 2003, Ph.D. student at Harvard U). Other dissertation committees: Dennis Lavrov, Russell Watkins, Stacia Wyman, Renfu Shao. **Current guest researchers:** Dr. Brian Simison (University of California Berkeley, 1 year), Dr. Yau-Wen Yang (Academia Sinica, Taiwan, 6 months). **Past guest researchers:** Prof. Axel Meyer (U of Konstanz, 3 months), Inaki Ruiz-Trillo (U of Barcelona, 3 months), Prof. Jim Garey (U of South Florida, 1 week), Prof. Eric Knox (Rutgers U, 3 weeks), Allen Haim (software developer, 9 months), Dr. Marty Wojciechowski (Berkeley, 3 months), Alek Bituin (Berkeley, 3 months), Dr. William Eddie (U of Texas, 3 months), Renfu Shao (U of Queensland, 2 months), Dr. Marco Passamonti (U of Bologna, 9 months), Dr. Mike Atkins (Woods Hole Marine Biology Lab, 1 month), Karen Slon (U of Connecticut, 1 month), David DeGusta (Berkeley, 6 months), Martin Jaekel (Berkeley, 1 year), Dr. Hsaio-Pei Yang (UC Davis, 4 months), Lisa Lee (U Southern California, 4 months), Prof. Richard Thomas (Natural History Museum, London, 4 months), Stacia Wyman (U of Texas, 3 months), Prof. Hiroshi Akashi (Penn State U, 2 weeks), Ron Bonett (U of Texas, 1 month), Nikoletta Danos (UC Berkeley, 1 year), Dr. Marcos Perez-Losada (Brigham Young U, 2 weeks), Dr. Kelly Ivors (UC Berkeley, 2 weeks), Rebekah Andrus (Utah State U, 1 week), Romey Haberle (U of Texas, 3 weeks).

PROFESSIONAL ORGANIZATIONS

Society for Molecular Biology and Evolution
Society for Systematic Biology
American Society for Microbiology

PROFESSIONAL EXPERIENCE, SERVICE, FELLOWSHIPS, AND HONORS

2002-present	Advisor to the All Species Foundation
2002-present	Steering Committee for "New Academic Initiatives", UC Berkeley
2002	Advisory Board on Technology Development to the All Species Foundation
2001-present	Lawrence Berkeley National Laboratory Institutional Biosafety Committee
2002	Search committee, Department of Plant and Microbial Biology, UC Berkeley
2001-present	Editorial Board for *Genome Letters*
2001	External examiner for dissertion defense of Russell Watkins, Simon-Frazer University, Burnaby, British Columbia, Canada
2001-present	Planning committee for Bay Area Biosystematists Group
2000	Advisory board to the NSF Tree of Life Initiative, Austin, TX
1999	Planned and led a symposium on "Mitochondrial Genomics" at the annual meetings of the Society for Molecular Biology and Evolution and the Genetics Society of Australia, Brisbane, Australia
1999	Gordon Research Conference Travel Fellowship to Japan
1992-96	NIH Postdoctoral Fellowship, three years, University of Minnesota
1995	NSF-Sponsored Travel Fellowship to Japan
1991	Rackham Dissertation Fellowship, grad school tuition and stipend for 1 year
1989-91	University of Michigan Competitive Graduate Student Grants, nine awards
1987-90	NIH Genetics Traineeship, tuition and stipend, four years
1976-80	Air Force Reserve Officers Training Scholarship, tuition and stipend

TEACHING EXPERIENCE

EVOLUTION OF ANIMAL MITOCHONDRIAL GENOMES, University of California Berkeley (Winter semester 2002).

Graduate Student Instructor, University of Michigan, GENETICS (winter semester 1991) and EVOLUTIONARY BIOLOGY (Fall semester 1990).

Formal training in instructional methods: I served as an Air Force officer for four years after receiving my Bachelor's degree. In preparation for my assignment as an instructor, I received formal training in teaching theory and methods, including many critiqued exercises. I performed daily instruction both in the classroom and in practical, hands-on settings, teaching such diverse topics as electronics, space physics, and management theory. I wrote hundreds of pages of instructional materials, workbooks, and tests. These experiences have helped me to develop skills in teaching that have continued to be of benefit throughout my academic work.

GRANTS AND FUNDING

$650,000. Department of Energy, "Evolutionary Genomics Studies". 10/01/02-10/01/03.
$1,070,000. U.S. Department of Agriculture. P.I. on "Genome Sequence of *Phakopsora pachyrhizi* and *Phakopsora meibomiae*". 10/01/02-1/31/04.
$186,000. NASA. P.I. on this subaward from "Microbial Life at Low Temperatures", Project Director James Tiedje. 10/01/01-9/30/04.
$1,848,000. National Science Foundation/U.S. Department of Agriculture. P.I. on this subaward from "Genome Sequence of *Phytophthora sojae*", Project Director Brett Tyler, total funding $2,350,000. 10/01/02-9/30/03. Further, P.I. on DoE supplemental funding of approximately $1,500,000 for sequencing of the related *Phytophthora ramorum*.
$142,163. National Science Foundation. P.I. on this subaward from "The Molluscan Mitochondrial Genome Project: Phylogenetic Analysis, Evaluation, and Enrichment", Project Director David Lindberg, total funding $285,900. 06/01/02-05/31/04.
$551,476. National Science Foundation. P.I. on this subaward from "A Combined Strategy for Resolving Difficulties in Basal Green Plant Phylogeny", Project Director Charles O'Kelly, total funding $2,945,292. 10/01/02-9/30/06.
$936,000. Department of Energy, intramural funds for "Genomic Diversity Studies". 10/01/01-10/01/02.
$201,109. National Science Foundation. P.I. on this subaward from "Wormnet: Reconstructing the Early Evolution of Segmented Annelid Worms", Project Director K. Halanych, total funding $1,350,000. 9/15/01-9/15/06.
$404,777. National Science Foundation. P.I. on this subaward from "Comparative Chloroplast Genomics: Integrating Computational Methods, Molecular Evolution, and Phylogeny", Project Director R. Jansen, total funding $1,350,000. 9/15/01-9/15/06.
$276,640. Department of Energy, intramural funds for "Mitochondrial Genomics". 10/01/00-10/01/01.
$281,390. Department of Energy, intramural funds for "Evolution of Gene Families". 10/01/00-10/01/01.
$200,000. National Science Foundation DEB-9807100. "A Phylogeny of Major Metazoan Radiations". 9/01/98-09/01/01. Co-P.I. with Wesley Brown.
$21,669. Rackham Research Partnership Program. 09/91-09/92.

PUBLICATIONS

1. Hoffmann, R. J., J. L. Boore and W. M. Brown, 1992 A novel mitochondrial genome organization for the Blue Mussel, *Mytilus edulis*. *Genetics* **131:** 397-412.
2. Boore, J. L. and W. M. Brown, 1994 Mitochondrial genomes and the phylogeny of mollusks. *Nautilus* **108 (suppl. 2):** 61-78.
3. Boore, J. L. and W. M. Brown, 1994 The complete DNA sequence of the mitochondrial genome of the Black Chiton *Katharina tunicata*. *Genetics* **138:** 423-443.
4. Boore, J. L., T. M. Collins, D. Stanton, L. L. Daehler and W. M. Brown, 1995 Deducing arthropod phylogeny from mitochondrial DNA rearrangements. *Nature* **376:** 163-165.
5. Boore, J. L. and W. M. Brown, 1995 The complete DNA sequence of the mitochondrial genome of the annelid worm *Lumbricus terrestris*. *Genetics* **141:**305-319.
6. Yost, H. J., C. R. Phillips, J. L. Boore, J. Bertman, B. Whalen and M. V. Danilchik, 1995 Relocation of mitochondrial RNA to the prospective dorsal midline during *Xenopus* embryogenesis. *Developmental Biology* **170:** 83-90.
7. Boore, J. L., 1996 Ancient patterns of arthropod evolution are recorded in mitochondrial genome rearrangements, *in:* Current Topics on Molecular Evolution: Proceedings of the U.S.-Japan Workshop on Molecular Evolution (M. Nei and N. Takahata, eds.). pp. 69-78.
8. Boore, J. L., 1997 Transmission of mitochondrial DNA—Playing favorites? *Bioessays* **19(9):** 751-753.
9. Boore, J. L., D. Lavrov and W. M. Brown, 1998 Gene translocation links insects and crustaceans. *Nature* **392:** 667-668.
10. Boore, J. L., and W. M. Brown, 1998 Big trees from little genomes: Mitochondrial gene order as a phylogenetic tool. *Curr. Opinion Genet. Dev.* **8(6):** 668-674.
11. Boore, J. L., L. L. Daehler and W. M. Brown, 1999 Complete sequence, gene arrangement and genetic code of mitochondrial DNA of the cephalochordate *Branchiostoma floridae* ("Amphioxus"). *Mol. Biol. Evol.* **16(3):** 410-418.
12. Boore, J. L., 1999 Animal mitochondrial genomes. *Nucl. Acids Res.* **27(8):** 1767-1780.
13. Boore, J. L. and S. I Fuerstenberg, 1999 *Entomoeba histolytica*—A derived mitochondriate eukaryote? *Trends in Microbiology* **7(11):** 426-428.
14. Boore, J. L., 1999 *Phylogenies derived from rearrangements of the mitochondrial genome.* Proceedings of the International Institute for Advanced Studies Symposium on Biodiversity (N. Saitou, ed.), Kyoto, Japan, pp. 9-20.
15. Boore, J. L., and W. M. Brown, 2000 Mitochondrial genomes of *Galathealinum*, *Helobdella*, and *Platynereis*: Sequence and gene arrangement comparisons indicate that Pogonophora is not a phylum and Annelida and Arthropoda are not sister taxa. *Mol. Biol. Evol.* **17(1):** 87-106.
16. Lavrov, D., J. L. Boore and W. M. Brown, 2000 The complete mitochondrial DNA sequence of the horseshoe crab *Limulus polyphemus*. *Mol. Biol. Evol.* **17(5):** 813-824.
17. Boore, J. L., 2000 The duplication/random loss model for gene rearrangement exemplified by mitochondrial genomes of deuterostome animals, pp. 133-147 *in* Comparative Genomics (D. Sankoff and J. Nadeau, eds.) Computational Biology Series vol 1, Kluwer Academic Publishers, Dordrecht, Netherlands.

18. Lavrov, D., W. M. Brown, and J. L. Boore 2000 A novel type of RNA editing occurs in the mitochondrial tRNAs of the centipede *Lithobius forficatus*. *Proc. Natl. Acad. Sci USA* **97(25):** 13738-13742.

19. Nickisch-Rosenegk, M. von, W. M. Brown and J. L. Boore, 2001 Sequence and structure of the mitochondrial genome of the tapeworm *Hymenolepis diminuta*: Gene arrangement indicates that platyhelminths are derived eutrochozoans. *Mol. Biol. Evol.* **18(5):** 721-730.

20. Boore, J. L., 2001 Complete mitochondrial genome sequence of the polychaete annelid *Platynereis dumerilii*. *Mol. Biol. Evol.* **18(7):** 1413-1416.

21. Helfenbein, K. G., W. M. Brown and J. L. Boore, 2001 The complete mitochondrial genome of a lophophorate, the brachiopod *Terebratalia transversa*. *Mol. Biol. Evol.* **18(9):** 1734-1744.

22. Wollscheid-Lengeling, E., J. L. Boore, W. M. Brown, and H. Wägele, 2001 The phylogeny of Nudibranchia (Opisthobranchia, Gastropoda, Mollusca) reconstructed by three molecular markers. *Organisms, Diversity and Evolution* **1(4):** 241-256.

23. Boore, J. L., and J. Staton, 2002 The mitochondrial genome of the sipunculid *Phascolopsis gouldii* supports its association with Annelida rather than Mollusca. *Mol. Biol. Evol.* **19(2):** 127-137.

24. Lavrov, D. V., J. L. Boore and W. M. Brown, 2002 Complete mtDNA sequences of two millipedes suggest a new model for mitochondrial gene rearrangements: Duplication and non-random loss. *Mol. Biol. Evol.* **19(2):** 163-169.

25. Dehal, P., Y. Satou, R. Campbell, J. Chapman, B. Degnan, A. DeTomaso, B. Davidson, A. DiGregorio, M. Gelpke, D. Goodstein, N. Harafuji, K. Hastings, I. Ho, K. Hotta, W. Huang, T. Kawashima, P. Lemaire, D. Martinez, I. Meinertzhagen, S. Necula, M. Nonaka, N. Putnam, S. Rash, H. Saiga, M. Satake, A. Terry, L. Yamada, H.-G. Wang, S. Awazu, K. Azumi, J. L. Boore, M. Branno, S. Chin-bow, R. DeSantis, S. Doyle, P. Francino, D. Keys, S. Haga, H. Hayashi, K. Hino, K. Imai, K. Inaba, S. Kano, K. Kobayashi, M. Kobayashi, B.-I. Lee, K. Makabe, C. Manohar, G. Matassi, M. Medina, Y. Mochizuki, S. Mount, T. Morishita, S. Miura, A. Nakayama, S. Nishizaka, H. Nomoto, F. Ohta, K. Oishi, I. Rigoutsos, M. Sano, A. Sasaki, Y. Sasakura, E. Shoguchi, T. Sin-I, A. Spagnuolo, D. Stainier, M. Suzuki, O. Tassy, N. Takatori, M. Tokuoka, K. Yagi, F. Yoshizaki, S. Wada, C. Zhang, P. D. Hyatt, F. Larimer, C. Detter, N. Doggett, T. Glavina, T. Hawkins, P. Richardson, S. Lucas, Y. Kohara, M. Levine, N. Satoh and D. Rokhsar, 2002 The draft Genome of *Ciona intestinalis*: Insights into chordate and vertebrate origins. *Science* **298 (5601):** 2157-2167.

26. Nardi, F., G. Spinsanti, J. L. Boore, A. Carapelli, R. Dallai and F. Frati, 2003 Hexapod origins, monophyletic or paraphyletic? *Science* **299:** 1887-1889.

27. Passamonti, M., J. L. Boore and V. Scali, 2003 Molecular evolution and recombination in gender-associated mitochondrial DNAs of the Manila clam *Tapes philippinarum*. *Genetics*, in press.

28. Santini, S., J. L. Boore and A. Meyer, 2003 Evolutionary conservation of regulatory elements in vertebrate *HOX* gene clusters. *Genome Research*, in press.

29. Wyman, S. K., and J. L. Boore, 2003 Annotating animal mitochondrial tRNAs: An experimental evaluation of four methods. *European Conference on Computational Biology Proceedings*, in press.

30. Lavrov, D., W. M. Brown and J. L. Boore, 200x The demise of a phylum: mtDNA analyses indicate strongly that Pentastomida is a group within the Pancrustacea. Submitted (to *Proceedings of the Royal Society*.).
31. Bensasson, D., J. L. Boore and K. M. Nielsen, 2003 Genes without Frontiers? Heredity, in press.
32. Boore, J. L., M. Medina and L. A. Rosenberg, 200x Complete sequences of two highly rearranged molluscan mitochondrial genomes, those of the scaphopod *Graptacme eborea* and of the bivalve *Mytilus edulis*. Submitted (to *Mol. Biol. Evol.*).
33. S. Masta, and J. L. Boore, 200x The complete mitochondrial genome sequence of the spider *Habronattus oregonensis* reveals rearranged and extremely truncated tRNAs. Submitted (to *Mol. Biol. Evol.*).
34. Boore, J. L., 200x Complete mitochondrial genome sequence of *Urechis caupo*, a representative of the phylum Echiura. Submitted (to *J. Mol. Evol.*).
35. Helfenbein, K. G., and J. L. Boore, 200x The Mitochondrial Genome of a Phoronid — Comparisons Demonstrate that Lophophorates are Protostomes. Submitted (to *Mol. Biol. Evol.*).

MANUSCRIPTS IN PREPARATION

36. Francino, P., L. L. Lee, A. Kobayashi and J. L. Boore, 200x A global phylogeny of prokaryotes including 18 newly sequenced genomes.
37. Ruiz-Trillo, I., J. Baguñà, M. Riutort and J. L. Boore, 200x Mitochondrial genome data of an acoel and a nemertodermatid: Gene content and phylogenetic inference.
38. Fourcade, H. M., M. Medina, J. C. Detter, P. Richardson and J. L. Boore, 200x An alternative to PCR for amplifying whole mitochondrial genomes.
39. Dehal, P., and J. L. Boore, 200x Tempo and mode of gene duplication events during chordate evolution.
40. Nardi, F., F. Frati, A. Carapelli, R. Dallai and J. L. Boore, 200x The complete mitochondrial sequence of the "living fossil" *Tricholepidion gertschi*: Structure, phylogenetic implications, and the description of a novel A/T asymmetrical bias.
41. Helfenbein, K., H. M. Fourcade, R. J. Vanjani and J. L. Boore, 200x The very unusual mitochondrial genome of a chaetognath.
42. Knox, E., H. M. Fourcade and J. L. Boore, 200x The complete sequence of the *Lobelia* chloroplast genome.
43. Boore, J. L., 200x The complete sequence of the mitochondrial genome of the Chambered Nautilus (Mollusca: Cephalopoda).

MANAGEMENT TRAINING AND EXPERIENCE

Scientific

1996-present	Lead a scientific team, currently ~20 researchers, targeting over 25 different scientific projects
2000-present	Serve on the Joint Genome Institute Senior Management Committee
2001-2002	Training program in Management Principles sponsored by the JGI

Military (Air Force and Air National Guard)

1976-1980	Reserve Officer Training Corps, Pennsylvania State University. 18 credit hours in Management Principles and Leadership Training.
1981-1984	Deputy Commander, then Commander, of a nuclear ICBM site and the Commander of the Base Alternate Command Post. Responsible for a nine-story underground complex, crew, oversight of missile complex maintenance and repair, nuclear employment, safety, and surety.
1982-1984	Officers' Leadership and Management Seminar Program
1982-1984	Squadron Officers' School, a course in communication, management theory, and political science considered to be the equivalent of a Master's degree
1985-1986	Flight training class leader (66 students)
1986	Survival and Resistance Training class leader (200 students)
1990-1994	Commander of one branch of aircraft maintenance for an F-16 fighter squadron, supervising about 100 highly skilled technicians of diverse specialties. Officer-in-charge for several international deployments
1995-1997	Air Command and Staff College, an advanced course in communication, management theory, and political science considered to be the equivalent of a Master's degree
1998-2000	Flight Commander and Chief Navigator, supervising about 20 officers

LEGAL CONSULTING EXPERIENCE

Expert witness in the case of "People of the State of Michigan vs. Kevin Holtzer", judicial (i.e., Frye) hearing to determine the admissibility of mitochondrial DNA forensic evidence in the state of Michigan.

Expert witness in the case of "People of the State of Michigan vs. Kevin Holtzer", trial for the murder of Kaylee Bruce, including the first use of mitochondrial DNA forensic evidence in the state of Michigan.

Expert witness in the case of "People of the State of Maryland vs. Hadden Clark", judicial hearing to determine the admissibility of mitochondrial DNA forensic evidence in the state of Maryland.

Expert witness in the case of "People of the State of Maryland vs. Russell Wagner".

MILITARY SERVICE

Branch:	US Air Force, Air National Guard
Rank:	Lieutenant Colonel (retired)
Dates of service	October 1980-December 1984 (US Air Force) January 1985-August 2000 (Air National Guard)
Aeronautical rating:	Senior Navigator
Most recent position:	Flight Commander, Chief Navigator
Security clearance:	Top Secret

Career Highlights:

Flight Commander and Chief Navigator, Selfridge ANGB, MI, 1/98-8/00

Air Command and Staff College, by correspondence, 3/95-5/97

C-130 Navigator, Selfridge ANGB, MI, 1/95-8/00

C-130 Training, Little Rock AFB, AR, 9/94-12/94, Distinguished Graduate

Officer-in-Charge, F-16 Fighter Aircraft Maintenance, Selfridge ANGB, MI, 7/90-8/94, Supervising approx. 100 technicians, Officer-in-Charge for several international deployments

Aircraft Maintenance Officer School, Chanaute AFB, IL, 5/90-6/90, Distinguished Graduate

Operated the F-4 Phantom II fighter in its role as an air defense interceptor, Weapon Systems Officer, Tactics Officer, Selfridge ANGB, MI, 8/86-6/90

F-4 Fighter-Interceptor Training, Kingsley Field, OR, 3/86-8/86

Tactical Navigation Training, Mather AFB, CA, 8/85-9/85, “Top Gun” Trophy

Undergraduate Navigator Training, Mather AFB, CA, ATC Commander's Trophy, Ira Husik Memorial Trophy, Distinguished Graduate

Squadron Officers' School, by correspondence, 12/82-3/84

Missile Crew Commander, McConnell AFB, KS, 2/84-11/84, Responsible for a nine-story underground complex, nuclear employment, safety and surety

Missile Launch Officer Instructor, McConnell AFB, KS, 12/82-11/83, Teaching electronics, space physics, management theory, nuclear safety and surety requirements

Deputy Missile Crew Commander, McConnell AFB, KS, 3/82-12/82

Missile Launch Officer Training, Sheppard AFB, TX, Vandenberg AFB, CA, 8/81-3/82

4-year Air Force Scholarship, Pennsylvania State University, 1976-1980

SCIENTIFIC TALKS IN THE LAST THREE YEARS

1) Lessons for genomics learned from mitochondrial genome comparisons. DOE Genomics Meeting, Santa Fe, NM, 2000—Invited speaker.
2) Lessons for genomics learned from mitochondrial genome comparisons. Wayne State University, Detroit, MI, 2000—Invited speaker.
3) Mitochondrial Genomics. University of California, Riverside, CA, 2000—Invited speaker.
4) Mitochondrial Genomics. University of Wisconsin, Madison, WI, 2000—Invited speaker.
5) Metazoan phylogeny and genome evolution. Texas A&M University, College Station, TX, 2000—Invited speaker.
6) Mitochondrial genomics—A model for genome evolution. Meeting on "Gene Order Dynamics, Comparative Mapping and Multigene Families" (DCAF), Montreal, Canada, 2000—Invited speaker.
7) Beyond linear sequence comparisons—Genome level characters for inferring metazoan phylogeny. Annual meeting of the Italian Society for Zoology, San Benedetto del Tronto, Italy, 2000—Invited speaker.
8) Comparative Genomics at the Joint Genome Institute. Lawrence Livermore National Laboratory, 2001—Invited speaker.
9) Comparative Genomics at the Joint Genome Institute. University of California, Berkeley, 2001—Invited speaker.
10) Comparative Genomics at the Joint Genome Institute. University of California, Davis, 2001—Invited speaker.
11) Comparative Genomics at the Joint Genome Institute. Iowa State University, Ames, IA, 2001—Invited speaker.
12) Comparative Genomics at the Joint Genome Institute. Special meeting of the Bay Area Biosystematists, 2001—Invited speaker.
13) Comparative Genomics at the Joint Genome Institute—Molecular Evolution at 20 Million Nucleotides per day. Institute for Theoretical Physics, Santa Barbara, CA, 2001—Invited speaker.
14) Comparative Genomics at the Joint Genome Institute—Molecular Evolution at 20 Million Nucleotides per day. Lawrence Livermore National Laboratory Program Series, 2001—Invited speaker.
15) Comparative Genomics at the Joint Genome Institute—Molecular Evolution at 20 Million Nucleotides per day. Simon-Fraser University, Burnaby, Canada, 2001—Invited speaker.
16) Comparative Genomics at the Joint Genome Institute—Molecular Evolution at 20 Million Nucleotides per day. Annual meeting of the Society for the Study of Evolution, Knoxville, TN, 2001.
17) The Comparative Genomics Program at the Joint Genome Institute. Monterey Bay Aquarium Research Institute (MBARI), Moss Landing, CA, 2001—Invited speaker.
18) Sampling Organismal Diversity with Organelle Genomics. Meeting on "Evolutionary Genomics—A New Paradigm for the 21st Century". Atami, Japan, 2001.
19) The Comparative Genomics Program at the Joint Genome Institute. UC Berkeley Paleontology Group, 2001—Invited speaker.

20) The Comparative Genomics Program at the Joint Genome Institute. Utah State University, Logan, UT, 2001—Invited speaker.

21) PEET, Organismal Biology, and High-Throughput Genome Centers. PEET IV, Berkeley, CA, 2002—Invited speaker.

22) The Genome of *Ciona intestinalis*, an Outgroup to the Vertebrata. University of Chicago, IL, 2002—Invited speaker.

23) The genome sequence of the primitive chordate *Ciona intestinalis*. Society for Molecular Biology and Evolution, Sorrento, Italy, 2002.

24) The Role of Genome Centers for the Future of Molecular Evolution. University of Siena, 2002—Invited speaker.

25) The Evolutionary Genomics Program at the JGI. Lawrence Berkeley Lab Science Seminar Series, 2002—Invited speaker.

26) The Phytophthora genome sequencing project, Meeting on Molecular Genetics of Phytophthora, Asilomar, CA, 2003 —Invited keynote speaker.